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## PRODUCT SPECIFICATION

### CRS-2R CATIONIC RAPID SETTING EMULSIFIED ASPHALT POLYMER MODIFIED

CRS-2R shall be an emulsified mixture of *straight-run vacuum tower bottoms asphalt*, synthetic SBR polymer dispersion, emulsifiers and water. The emulsion shall contain a minimum of three percent (3.0%) styrene butadiene rubber (SBR) solids by weight of asphalt cement. The SBR polymer dispersion shall be co-milled during the emulsification process such that a bicontinuous polymer-asphalt network is formed upon curing of the finished emulsion. The emulsion shall be pumpable and suitable for application through a distributor truck. The emulsion, standing undisturbed for 48 hours will show reflective white polymer on the surface as evidence that the emulsion contains comilled SBR polymer dispersion. The emulsified asphalt shall conform to the following requirements:

	<u>Min</u>	<u>Max</u>	<u>AASHTO</u>	<u>ASTM</u>	<u>CDOT</u>
<b>Tests on Emulsion:</b>					
Viscosity, Saybolt Furol, 50°C, s	<b>80</b>	<b>450</b>	T-59	D244	
Storage stability test, 24-h, % <sup>A</sup>		<b>1</b>	T-59	D6930	
Demulsibility, 35ml, 0.8% dioctyl sodium sulfosuccinate, %	<b>40</b>		T-59	D6936	
Particle charge test	<b>positive</b>		T-59	D244	
Sieve test, % <sup>A</sup>		<b>0.1</b>	T-59	D6933	
Distillation <sup>B</sup> :					
Oil distillate, by volume of emulsion, %		<b>0.5</b>	T-59	D6997	
Residue, %	<b>67</b>		T-59	D6997	CP-L2212*
<b>Tests on Residue from 325°F hot plate evaporation test (Colorado DOT CP-L2212)<sup>B</sup>:</b>					
Penetration, 25°C, 100g, 5 sec	<b>70</b>	<b>120</b>	T-49	D5	
Ductility, 25°C, 5 cm/min, cm	<b>100</b>		T-51	D113	
Ductility, 4°C, 5 cm/min, cm	<b>30</b>		T-51	D113	
Toughness, in-lb	<b>110</b>		D5801	CP-L2210*	
Tenacity, in-lb	<b>75</b>		D5801	CP-L2210*	
Elastic recovery, 25°C, 20cm, 5m hold/1h recovery, %	<b>60</b>		T301	D6084	CP-L2211*
Softening Point, Ring & Ball, °C	<b>57</b>		T-53	D36	
Solubility in trichloroethylene <sup>C</sup> , %	<b>97.5</b>		T-44	D2042	

<sup>A</sup> This test requirement on representative samples is waived if successful application of the material has been achieved in the field.

<sup>B</sup> Distillation to 260°C (T-59 §11 to 15) shall be the reference method for percent distillate and percent residue. Residue by hot plate evaporation at 163°C (CP-L2212 modified to a maximum temperature of 325°F) shall be the reference method to obtain material for tests on residue. Residue from distillation shall not be used for tests on residue due to polymer degradation at 260°C. Colorado DOT Procedure CP-L 2212\* modified to a 163°C maximum temperature may be used for acceptance testing of percent residue.

<sup>C</sup> If the solubility of the residue is less than 97.5%, the base asphalt binder for the emulsion shall be tested. The solubility of the base asphalt binder shall be greater than 99 percent.

\* CP-L 2210, CP-L 2211, and CP-L 2212 are Colorado Department of Transportation test procedures.

*Specifications are subject to change without notice.*